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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/758,667	01/11/2001	Russell R. Krug	005950-656	9538

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EXAMINER
YILDIRIM, BEKIR L

ART UNIT	PAPER NUMBER
1764	

DATE MAILED: 01/24/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/758,667	Applicant(s) KRUG ET AL.	
	Examiner Bekir L. YILDIRIM	Art Unit 1764	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-21 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-21 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4 .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Claim Objections

I. Claim 14 is objected to because of the following informalities: The claim does not end with a period (.).

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. The factual inquiries set forth in Graham v. John Deere Co., 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.

4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

4. Claims 1, 3-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Huss, Jr. et al. (US-PAT-NO: 4,935,577).

Huss, Jr. et al. teaches an oligomerization processes utilizing a catalyst comprising a Lewis acid promoted non-zeolitic solid inorganic oxide, large pore crystalline molecular sieve and/or ion exchange resin, which can be in the presence of water, which is effected by catalytic distillation techniques.

More specifically, the subject process is directed to an alpha-olefin which is oligomerized in the presence of a catalyst comprising boron trifluoride, a minute amount of water in a particular adsorbent material such as silica to a product predominating in those oligomer fractions having viscosities within the lubricating oil range such as the trimer and tetramer of 1-

decene. While, this is the preferred alpha-olefin for this oligomerization. However, 1-olefins having from 3 to 20 carbon atoms and preferably 8 to 12 carbon atoms or various combinations of these alpha-olefins can also be used. Straight chain olefins are preferred.

The solid adsorbent material of the invention may be selected from among the diverse inorganic oxides including alumina,silica, boria, oxides or phosphorus, titanium dioxide, zirconium dioxide, chromia, zinc oxide, magnesia, calcium oxide, silica-alumina, silica-magnesia, silica-alumina-magnesia, silica-alumina- zirconia. The reactants are introduced into the catalyst bed or reaction area. Product is withdrawn from beneath the reaction area, while unreacted reactants are withdrawn above the reaction zone (see supra).

It is acknowledged that Huss, Jr. et al. is silent about the boling point of the olefin feedstock. However the invention as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made because the reference's suitable feedstock, "alpha olefins having 3 to 20 carbon atoms" boling-point ranges would overlap the "greater than 180 F" range. Overlapping ranges was held to be evidence of prima facia obviousness.

5. Claims 1, 3-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chang et al. (USP 4,678,645) in view of Huss, Jr. et al. (US-PAT-NO: 4,935,577).

Chang et al. (USP 4,678,645) teaches a method for the conversion of LPG hydrocarbons to distillate fuels or lubes using integration of LPG dehydrogenation and MOGDL (Mobil Olefins to Gasoline/Distillate/Lubes) which involve two oligomerization zones. A heavy fraction from the second oligomerization zone is upgraded, by hydrotreatment, which corresponds to

instant hydrofinishing and a heavy fraction thereof forms the lube basestock (see figure, col. 1, lines 55-68). The process employs a zeolite oligomerization catalyst, such as ZSM-5 or the like and a supported Pd catalyst in stabilizing the distillate product to form lube basestock. The reference further discusses how the oligomerization conditions can be adjusted in accordance with the desired product slate, i.e. operating in gasoline, distillate and lube modes (col. 2, line 35 - 68; col. 4, lines 3-28, 60-64, col. 6, lines 1-5, 60-67, col. 7, lines 22-45).

It is acknowledged that the Chang et al. does not employ catalytic distillation column. It would have been obvious to modify the Chang et al. process by performing the product fractionation and oligomerization wiin the same column as suggested by Huss, Jr. et al. (US-PAT-NO: 4935577) since Huss et al. discloses that the combined reactor/fractionator wherein product is continously removed as it forms provides technical and economic advantages such as lower energy requirements, higher yields, good product purity and lower capital investment (col. 1, lines 20-25).

6. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Huss, Jr. et al. (US-PAT-NO: 4935577) in view of Sweeney (USP 4,527,004).

Huss et al. teachings have been discussed above. It is acknowledged that Huss, Jr. et al. is silent about the source of aplpha-olefinic feedstock.

Sweeney teaches a process for the purification of olefins, such as those obtained from Fischer-Tropsch process, or C5-C25 olefins obtained by the dehydrogenation of n-paraffins (see col. 1, lines 55-64). It would have been obvious to one having ordinary skill in the art at the time the invention was made to use Sweeney's olefinic product as feed to the oligomerization

process of Huss, Jr. et al. because the olefins produced in Sweeney are the type that Huss, jr. Et al. calls for. Skilled artisan, given the suitable feed characteristics would not be limited as to the source of the feed, meeting the requirements.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Atkins et al. discloses that the production of olefins suitable for oligomerization by a Fischer_Tropsch process was also well known (col. 1, lines 8-40). The reference further teaches a process for producing lubes by oligomerizing a C5-C20 olefinic feed to form a lubricating oil, separating the lube fraction from the effluent and optionally catalytically hydrogenating the formed lube fraction, to hydrogenate the unconverted olefins (col. 2, lines 43-63). The reference also discloses generally that when hydrogen amount in the synthesis gas mixture to F-T reaction is high, the products are predominantly paraffinic (col. 2, lines 1-18, col. 2, line 65 - col. 3, line 13). The process produces lubes having viscosity index above 155 and pour points up to -65 0C (col. 3, line 55 - col. 4, line 3).

Wu (US-PAT-NO: 5068476) teaches the production of liquid olefin oligomers by the oligomerization of C.sub.2 -C.sub.5 alpha olefin alone or with ethylene as a co-monomer.

Hildinger et al. teaches a process from a hydrocarbon synthesis process such as a Fischer_Tropsch process, separating a heavier (preferably C5+) fraction from the effluent, from

condensate , water and other contaminants such as oxygenates (col. 1, lines 35-53, col. 2, line 63-col. 3, line 10, col. 4, lines 23-40).

8.. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Bekir L. Yildirim whose telephone number is (703) 308-3586. The examiner can normally be reached on weekdays from 9 to 6.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marian Knode, can be reached on (703) 308-4311. The fax phone number for the organization where this application or proceeding is assigned is (703) 305-3599.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0611.

B.L.Y.
January 17, 2003